V.D.2.N.d. Short temperate annual grassland

V.D.2.N.d.2. BROMUS TECTORUM SEMI-NATURAL HERBACEOUS ALLIANCE

Cheatgrass Semi-natural Herbaceous Alliance

BROMUS TECTORUM SEMI-NATURAL HERBACEOUS ALLIANCE

Cheatgrass Herbaceous Semi-natural Alliance

ELEMENT CONCEPT

GLOBAL SUMMARY: This alliance-level herbaceous vegetation type is found throughout much of western North America from the western Great Plains to Intermountain West. It occurs after disturbance of a natural shrub- or grass-dominated community that results in the replacement of the natural vegetation by non-native, annual grass species of *Bromus*. *Bromus tectorum* typically dominates the community with over 80-90% of the total vegetation cover, making it difficult to determine what natural community was formerly present. This alliance also includes grasslands dominated or codominated by other Eurasian introduced annual *Bromus* species such as *Bromus hordeaceus, Bromus madritensis, Bromus japonicus, Bromus rigidus*, or *Bromus rubens*. It is distinct from the annual *Bromus* communities found along the Pacific Coast typical of the Mediterranean or maritime climates.

ENVIRONMENTAL DESCRIPTION

USFWS Wetland System: Not Applicable

Zion National Park Environment: *Bromus tectorum* Semi-natural Herbaceous Alliance (CEGL003019) was observed in low-lying sites, washes and river floodplains, and dry meadows in upland areas. These sites are highly disturbed from human recreational use, past livestock grazing and cultivation.

Global Environment: This alliance-level herbaceous vegetation type is found throughout much of western North America from the western Great Plains to intermountain and southwestern U.S. Elevation ranges from sea level to 2200 m. Stands occur after disturbance of a natural shrub- or grass-dominated community resulting in the replacement of the natural vegetation by non-native, annual grass species of *Bromus*. At Wind Cave National Park in South Dakota, weedy non-native graminoid vegetation occurs on recently disturbed areas, most commonly along roads. Small stands also occur in prairie dog towns (H. Marriott pers. comm. 1999). In the Great Basin, *Bromus tectorum* grasslands has invaded large areas of burned-over sagebrush steppe. *Bromus tectorum* increases the fire frequency of steppe communities, which eventually eliminates sagebrush (FEIS 2001).

VEGETATION DESCRIPTION

Zion National Park Vegetation: This alliance is dominated by *Bromus tectorum*. Other species present are most commonly exotic forbs and agricultural grasses.

Global Vegetation: This alliance-level vegetation type is characterized by a sparse to dense short annual graminoid layer that is typically dominated by *Bromus tectorum* with over 80-90% of the total vegetation cover. Other Eurasian introduced annual species of *Bromus* which may alternatively dominate or codominate are *Bromus carinatus, Bromus hordeaceus, Bromus madritensis, Bromus japonicus, Bromus rigidus*, or *Bromus rubens*. Although there may be remnant species of the former native vegetation, the high cover of annual bromes makes it difficult to determine what natural community was formerly present. At Wind Cave National Park in South Dakota, this weedy non-native graminoid vegetation is usually dominated by several perennial and annual brome grasses, including *Bromus inermis, Bromus japonicus*, and cheatgrass *Bromus tectorum*. Cover is variable (H. Marriott pers. comm. 1999).

Global Dynamics: *Bromus tectorum* is an annual grass and is able to complete its lifecycle in the spring before drying out mid-summer. Its fine structure makes it extremely flammable when dry, and it will increase the fire frequency of a site (FEIS 2001). Frequent fires favor *Bromus tectorum* because they eliminate competing perennial vegetation, but do not kill all the *Bromus tectorum* seeds, which survive in the unburned organic material (FEIS 2001). This altered ecological process has promoted the spread of *Bromus tectorum* and other exotic annual bromes at the expense of sagebrush shrublands in large parts of the western U.S. (Daubenmire 1975, Young and Evans 1973, 1978).

This type is most common where disturbances have eliminated or largely set back the native vegetation. Where the brome grasses are invading native vegetation, the types may still be tracked as native types, since the native species may still persist. A recent study (Karl et al. 1999) found that despite strong seed and seedling production by the exotic brome grasses (*Bromus japonicus, Bromus tectorum*), the large amount of herbaceous biomass produced by the two vegetatively propagating native grasses, *Bouteloua gracilis* and *Pascopyrum smithii*, suggests that these native grasses may well maintain their ecological importance in the stands.

In Nevada, Beatley (1976) found dense stands the introduced winter annual grass *Bromus tectorum* growing in disturbed *Artemisia* shrublands. *Bromus rubens* is more common in lower elevation sites, and *Bromus tectorum* is most common in higher elevation sagebrush and pinyon-juniper communities.

MOST ABUNDANT SPECIES

Zion National Park

Stratum	Species
GRAMINOID	*Bromus tectorum*

Global

Stratum	Species
GRAMINOID	*Bromus tectorum, Bromus hordeaceus, Bromus madritensis, Bromus japonicus, Bromus rigidus*, *Bromus rubens*

CHARACTERISTIC SPECIES

Zion National Park

Stratum	Species
GRAMINOID	*Bromus tectorum*

Global

Stratum	Species
GRAMINOID	*Bromus tectorum, Bromus hordeaceus, Bromus madritensis, Bromus japonicus, Bromus rigidus*, *Bromus rubens*

GLOBAL SIMILAR ASSOCIATIONS:
Information not available.

GLOBAL STATUS AND CLASSIFICATION COMMENTS

Global Conservation Status Rank: GW.

Global Comments: This alliance also includes grasslands dominated or codominated by other Eurasian introduced annual *Bromus* species. It is distinct from the annual *Bromus* communities found along the Pacific Coast with Mediterranean or maritime climates because it does not have the introduced annual oatgrass (*Avena barbata* and *Avena fatua*), or other species typical of the California annual grassland (Sawyer and Keeler-Wolf 1995).

ELEMENT DISTRIBUTION

Zion National Park Range: No plots were taken for this vegetation type. It was observed in disturbed areas of Zion National Park at lower elevations and a variety of landforms, but is more common in lowlands, old agriculture fields and overgrazed pastures. This alliance is extensive in Main Canyon, Parunaweep Canyon, and Upper Coalpits.

Global Range: This alliance-level herbaceous vegetation type is found throughout much of western North America from the western Great Plains to intermountain and southwestern U.S.

Nations: US
States/Provinces: AZ CA UT

ELEMENT SOURCES

Zion National Park Inventory Notes: Plots: None. AA plots: Yes
Classification Confidence: 2 **Identifier:** CEGL003019
REFERENCES: Beatley 1976, Daubenmire 1975, FEIS 2001, Karl et al. 1999, Sawyer and Keeler-Wolf 1995, Young and Evans 1973, Young and Evans 1978